

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 3)

10. Is a directional antenna proposed?

☒ Yes ☐ No

If Yes, attach as an Exhibit a statement with all data specified in 47 C.F.R. Section 73.316, including plot(s) and tabulations of horizontally and vertically polarized radiated components in terms of relative field.

Exhibit No.  
E

11. Will the main studio be located within the 70 dBu or 3.16 mV/m contour?

☐ Yes ☒ No

If No, attach as an Exhibit justification pursuant to 47 C.F.R. Section 73.1125.

Exhibit No.  
F

12. Are there: (a) within 60 meters of the proposed antenna, any proposed or authorized FM or TV transmitters, or any nonbroadcast *(except citizens band or amateur)* radio stations; or (b) within the blanketing contour, any established commercial or government receiving stations, cable head-end facilities, or populated areas; or (c) within ten (10) kilometers of the proposed antenna, any proposed or authorized FM or TV transmitters which may produce receiver-induced intermodulation interference?

☒ Yes ☐ No

If Yes, attach as an Exhibit a description of any expected, undesired effects of operations and remedial steps to be pursued if necessary, and a statement accepting full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of modulation) to facilities in existence or authorized or to radio receivers in use prior to grant of this application. *(See 47 C.F.R. Sections 73.315(b), 73.316(d) and 73.318.)*

Exhibit No.  
E

13. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction D for Section V. Further, the map must clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers.

Exhibit No.  
E-2, 2A

14. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers:

Exhibit No.  
E-3

(a) the proposed transmitter location, and the radials along with profile graphs have been prepared;

(b) the 1 mV/m predicted contour and, for noncommercial educational applicants applying on a commercial channel, the 3.16 mV/m contour; and

(c) the legal boundaries of the principal community to be served.

15. Specify area in square kilometers (1 sq. mi. = 2.59 sq. km.) and population (latest census) within the predicted 1 mV/m contour.

Area 2,799 sq. km.  
(Land)

Population 132,516

16. Attach as an Exhibit a map *(Sectional Aeronautical charts where obtainable)* showing the present and proposed 1 mV/m (60 dbu) contours.

Exhibit No.

Not Applicable

Enter the following from Exhibit above: Gain Area \_\_\_\_\_ sq. mi.  
Loss Area \_\_\_\_\_ sq. mi.

Percent change (gain area plus loss area as percentage of present area) \_\_\_\_\_ %.

If 50% or more this constitutes a major change. Indicate in question 2(c), Section I, accordingly.

17. For an application involving an auxiliary facility only, attach as an Exhibit a map (*Sectional Aeronautical Chart or equivalent*) that shows clearly, legibly, and accurately, and with latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. 

(a) the proposed auxiliary 1 mV/m contour; and

(b) the 1 mV/m contour of the licensed main facility for which the applied-for facility will be auxiliary. Also specify the file number of the license. See 47 C.F.R. Section 73.1675. (File No.:                                 )

18. Terrain and coverage data (*to be calculated in accordance with 47 C.F.R. Section 73.313*).

Source of terrain data: (*check only one box below*)

☒ Linearly interpolated 30-second database

☐ 7.5 minute topographic map

(Source:           NGDC                                )

☐ Other (*briefly summarize*)

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 3 to 16 km (meters)	Predicted Distances to the 1 mV/m contour (kilometers)
0	81.2	21.9
45	92.0	35.0
90	82.0	41.3
135	81.3	41.2
180	100.9	44.9
225	105.9	45.8
270	88.7	39.2
315	76.7	23.0

#### Allocation Studies

(*See Subpart C of 47 C.F.R. Part 73*)

19. Is the proposed antenna location within 320 kilometers (199 miles) of the common border between the United States and Mexico?

☐ Yes ☒ No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Agreement between the United States of America and the United Mexican States concerning Frequency Modulation Broadcasting in the 88 to 108 MHz band.

Exhibit No.

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 5)

20. Is the proposed antenna location within 320 kilometers of the common border between the United States and Canada?

☐ Yes ☒ No

If Yes, attach as an Exhibit a showing of compliance with all provisions of the Working Agreement for Allocation of FM Broadcasting Stations on Channels 201-300 under The Canada-United States FM Agreement of 1947.

Exhibit No.

21. If the proposed operation is for a channel in the range from channel 201 through 220 (88.1 through 91.9 MHz), or if this proposed operation is for a class D station in the range from Channel 221 through 300 (92.1 through 107.9 MHz), attach as an Exhibit a complete allocation study to establish the lack of prohibited overlap of contours with other U.S. stations. The allocation study should include the following:

Exhibit No.  
E-4

- (a) The normally protected interference-free and the interfering contours for the proposed operation along all azimuths.
- (b) Complete normally protected interference-free contours of all other proposals and existing stations to which objectionable interference would be caused.
- (c) Interfering contours over pertinent arcs of all other proposals and existing stations from which objectionable interference would be received.
- (d) Normally protected and interfering contours over pertinent arcs, of all other proposals and existing stations, which require study to show the absence of objectionable interference.
- (e) Plot of the transmitter location of each station or proposal requiring investigation, with identifying call letters, file numbers and operating or proposed facilities.
- (f) When necessary to show more detail, an additional allocation study will be attached utilizing a map with a larger scale to clearly show interference or absence thereof.
- (g) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire Exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
- (h) The name of the map(s) used in the Exhibit(s).

22. With regard to any stations separated by 53 or 54 channels (10.6 or 10.8 MHz) attach as an Exhibit information required in 1/ (*separation requirements involving intermediate frequency (i.f.) interference*).

Exhibit No.  
E

23.(a) Is the proposed operation on Channel 218, 219, or 220?

☒ Yes ☐ No

(b) If the answer to (a) is yes, does the proposed operation satisfy the requirements of 47 C.F.R. Section 73.207?

☒ Yes ☐ No

(c) If the answer to (b) is yes, attach as an Exhibit information required in 1/ regarding separation requirements with respect to stations on Channels 221, 222 and 223.

Exhibit No.  
E

(d) If the answer to (b) is no, attach as an Exhibit a statement describing the short spacing(s) and how it or they arose.

Exhibit No.

1/ A showing that the proposed operation meets the minimum distance separation requirements. Include existing stations, proposed stations, and cities which appear in the Table of Allotments; the location and geographic coordinates of each antenna, proposed antenna or reference point, as appropriate; and distance to each from proposed antenna location.

**SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 8)**

- (e) If authorization pursuant to 47 C.F.R. Section 73.215 is requested, attach as an Exhibit a complete engineering study to establish the lack of prohibited overlap of contours involving affected stations. The engineering study must include the following:

Exhibit No.

- (1) Protected and interfering contours, in all directions (360 ), for the proposed operation.
- (2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as transmitter location.
- (3) When necessary to show more detail, an additional allocation study utilizing a map with a larger scale to clearly show prohibited overlap will not occur.
- (4) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
- (5) The official title(s) of the map(s) used in the exhibit(s).

24. Is the proposed station for a channel in the range from Channel 201 to 220 (88.1 through 91.9 MHz) and the proposed antenna location within the distance to an affected TV Channel 6 station(s) as defined in 47 C.F.R. Section 73.525?

☒ Yes ☐ No

If Yes, attach as an Exhibit either a TV Channel 6 agreement letter dated and signed by both parties or a map and an engineering statement with calculations demonstrating compliance with 47 C.F.R. Section 73.525 for each affected TV Channel 6 station.

Exhibit No.  
E-5

25. Is the proposed station for a channel in the range from Channel 221 to 300 (92.1-107.9 MHz)?

☐ Yes ☒ No

If Yes, attach as an Exhibit information required in 1/. (Except for Class D (secondary) proposals.)

Exhibit No.

26. Environmental Statement (See 47 C.F.R. Section 1.1301 et seq.)

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact?

☐ Yes ☒ No

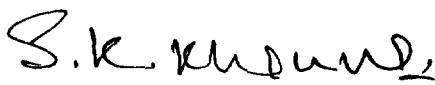
If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311.

Exhibit No.

If No, explain briefly why not. Proposal does not involve any action specified in Section 1.1307(a)&(b) of the Commission's Rules

**CERTIFICATION**

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name (Typed or Printed) S. K. Khanna	Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer
Signature 	Address (Include ZIP Code) Cohen, Dippell and Everist, P.C. 1300 L Street, NW Suite 1100 Washington, DC 20005
Date May 7, 1993	Telephone No. (Include Area Code) (202) 898-0111

**EXHIBIT E**

**ENGINEERING REPORT  
RE APPLICATION FOR A CONSTRUCTION PERMIT  
FOR A NEW NCE-FM STATION AT  
LEONARDTOWN, MARYLAND  
CHANNEL 219B (91.7 MHz) 50.0 kW MAX. 88.6 METERS**

**MAY 1993**

**COHEN, DIPPELL AND EVERIST, P.C.  
CONSULTING ENGINEERS  
RADIO AND TELEVISION  
WASHINGTON, D.C.**

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington )  
 ) ss  
District of Columbia )

Sudhir K. Khanna, being duly sworn upon his oath, deposes and states:

That he is a graduate electrical engineer, a registered professional engineer in the District of Columbia, and is Secretary-Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio-Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction; and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts, he believes them to be true.

S. K. Khanna

Sudhir K. Khanna  
District of Columbia  
Professional Engineer  
Registration No. 8057

Subscribed and sworn to before me this 7<sup>th</sup> day of May, 1993.

Carol L. Lyons

Notary Public

My Commission Expires:

2/28/98

### Introduction

This engineering report has been prepared on behalf of Greater Washington Educational Telecommunications Association, Inc. (GWETA) in support of its application for a construction permit for a new non-commercial educational (NCE) FM broadcast station at Leonardtown, Maryland. The new FM station will operate on Channel 219B (91.7 MHz) with 50 kW maximum effective radiated power (ERP) and 88.6 meters antenna height above average terrain (HAAT) using a directional antenna.

Exhibits requested by Section V-B of FCC Form 340 are included in this engineering report.

### Antenna Site

The proposed FM antenna will be side-mounted on an existing tower located at 4.2 kilometers northwest of Leonardtown in St. Mary's county, Maryland.

The geographic coordinates (NAD-27) of the proposed antenna site are as follows:

North Latitude: 38° 19' 13"

West Longitude: 76° 40' 10"

The attached Exhibits E-2 and E-2A show the proposed site on a USGS 7.5 minute series topographic quadrangle map, Leonardtown, Maryland.

The following tabulation shows the pertinent elevation data for the proposed operation.

Equipment Data

Transmitter:	Type approved
Transmission Line:	86 meter Andrew, Type HJ8-50, Helix cable with 3" outer diameter
Antenna:	Circularly Polarized, 4-bay, Directional

Power Data

Maximum Effective Radiated Power:	50 kW (H & V)
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Elevation Data

Elevation of the site above mean sea level	33.5 meters (34 m)
Elevation of the top of supporting structure above ground including lighting	83.5 meters (84 m)
Elevation of the top of structure above mean sea level including lighting	117 meters
Height of antenna center of radiation above ground	73.5 meters (74 m)
Height of antenna center of radiation above mean sea level	107 meters
Height of antenna center of radiation above average terrain	88.6 meters (89 m)

The attached Exhibit E-1 shows a vertical sketch of the proposed antenna supporting structure.



Allocation Situation

The attached Table I shows the distances to the pertinent co-channel and adjacent channel stations from the proposed antenna site. As indicated in Exhibit E-4, the proposed FM operation of Channel 219B at Leonardtown, Maryland does not involve any prohibited overlap with any pertinent FM station as defined by Section 73.509 of the Commission's Rules. The proposed FM operation also meets the required minimum separation to adjacent channel commercial FM stations as well as stations operating on 53/54 channels removed from the proposed Channel 219B.

There is only one Channel 6 TV station (WTVR-TV) located within 159 kilometers of the proposed FM antenna site. Station WTVR-TV is licensed to Richmond, Virginia and operates on Channel 6 with 100 kW ERP and 256 meters HAAT. Its antenna site is located 109.7 kilometers from the proposed FM site. The attached Exhibit E-5 shows the proposed interfering (89 dB $\mu$ ) contour of the FM station in relation to the Grade B (47 dB $\mu$ ) contour of the Channel 6 TV station. Exhibit E-5 indicates there would be a small (land) area of overlap between these two contours. Any potential interference from the proposed FM operation to Channel 6 TV station would be contained within this overlap area. The overlap (land) area would cover 4 square kilometers and a population of 189 people only (1990 census), substantially less than 3000 people permitted under the Commission's Rules. Therefore, the proposed FM operation would comply with Section 73.525 of the

Commission's Rules concerning objectionable interference to the Channel 6 TV station.

#### Topographic Data

The terrain data, between 3 to 16 km, for computing contours for the proposed and existing stations is based on the NGDC 30-second data base.

#### Contour Data

The distances along radials to the limits of various contours were computed using Figures 1 and 1a of Section 73.333 of the Commission's Rules, and are shown on the attached tables. The proposed FM contours were computed at every 5° radial starting at true north.

#### Population and Area Data

The population of the proposed 1.0 mV/m contour was estimated based on 1990 census of the United States by using a computer which counts the population of a census block if its centroid is located within the contour. The land area of the contour was measured with a polar planimeter using the original map.

#### FAA Notice

A notice of the proposed construction (Form 7460-1) has been mailed to Eastern Regional office of the FAA.

#### Other Radio Stations

There is only one FM station located within 10 km of the proposed FM site. Station WBEY, authorized at California, Maryland, operates on channel 275A (102.9

MHz) and is located 4.8 km from the proposed FM antenna site. The proposed FM operation (91.7 MHz) in conjunction with WBEY would not produce any receiver induced 3rd order intermodulation products on any FM broadcast stations.

There are no TV stations located within 10 km of the proposed FM site.

In case of a problem to any authorized non-broadcast facilities or radio receivers, the applicant would take the necessary remedial steps to resolve the intermodulation interference.

#### Blanketing Contour

The proposed blanketing contour (115 dBu) based on a maximum ERP of 50 kW will extend 2.79 km from the proposed site. The applicant will comply with all the pertinent requirements of Section 73.318 of the Commission's rules.

#### Environmental Statement

The proposed FM antenna would be side-mounted on an existing tower. The tower was part of an AM station<sup>1/</sup> antenna array which has discontinued broadcasting.

According to the applicant, the proposed transmitter site is not located near any known wilderness area, wildlife preserve, historic place or Indian religious sites.

The proposed facilities will not affect any listed threatened or endangered species or habitats; nor jeopardize the continued existence of any proposed

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<sup>1/</sup> AM station's call letters were WKIK before it went dark.

endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.

The proposed operation of a FM station at the site does not involve significant changes in the surface features.

The proposed facilities will not affect any known districts, sites, buildings, structures, or objects significant an American history, architecture, archaeology, engineering or culture.

It is not proposed to equip the antenna tower with high intensity white lights.

An evaluation has been made to determine compliance with the Commission's specified standards for human exposure to RF radiation as set forth in the OST Bulletin No. 65, dated October, 1985. For a maximum combined effective radiated power of 100 kW (horizontal plus vertical) and a radiation center of 73.5 meters above ground level, the proposed FM operation would have a maximum of 653.5 microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ) RF radiation level at 2 meters above the base of tower. The current ANSI standard for the FM band is  $1000 \mu\text{W}/\text{cm}^2$ .

Therefore, members of public and personnel working around the proposed FM transmitting facility will not be exposed to RF radiation levels above those prescribed by ANSI. With respect to work performed on the tower structure, the proposed FM station will establish procedures, including reduction or turning off the power, to ensure workers are not exposed to RF radiation levels exceeding the ANSI guidelines.

**For the reasons stated above, GWETA proposal does not involve any action specified in Section 1.1307(a) and (b) of the Commission's Rules; therefore, under Section 1.1306, it is categorically excluded from environmental processing.**

**DIRECTIONAL ANTENNA  
FOR THE PROPOSED FM OPERATION AT  
LEONARDTOWN, MARYLAND  
MAY 1993**

AZIMUTH	H&V ANTENNA RELATIVE FIELD	H&V EFFECTIVE RADIATED POWER	
		DBK	KW
0	0.245	4.77	3.00
5	0.245	4.77	3.00
10	0.266	5.50	3.55
15	0.299	6.50	4.47
20	0.335	7.50	5.62
25	0.376	8.50	7.08
30	0.422	9.50	8.91
35	0.474	10.50	11.22
40	0.532	11.50	14.13
45	0.596	12.50	17.78
50	0.669	13.50	22.39
55	0.751	14.50	28.18
60	0.842	15.50	35.48
65	0.945	16.50	44.67
70	1.000	16.99	50.00
75	1.000	16.99	50.00
80	1.000	16.99	50.00
85	1.000	16.99	50.00
90	1.000	16.99	50.00
100	1.000	16.99	50.00
105	1.000	16.99	50.00
110	1.000	16.99	50.00
115	1.000	16.99	50.00
120	1.000	16.99	50.00
125	1.000	16.99	50.00

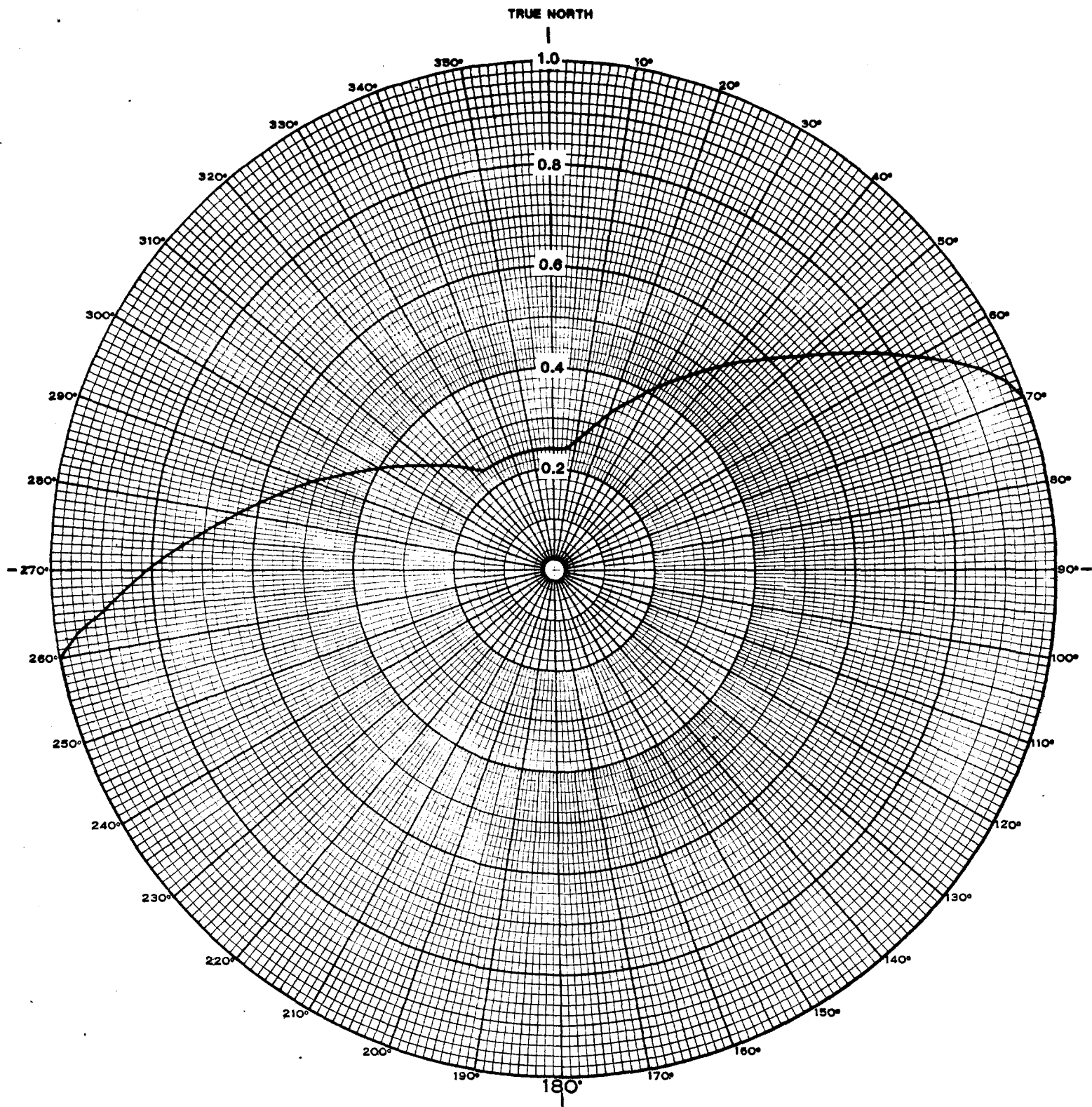
**DIRECTIONAL ANTENNA  
FOR THE PROPOSED FM OPERATION AT  
LEONARDTOWN, MARYLAND  
MAY 1993**

AZIMUTH	H&V ANTENNA RELATIVE FIELD	H&V EFFECTIVE RADIATED POWER	
		DBK	KW
130	1.000	16.99	50.00
135	1.000	16.99	50.00
140	1.000	16.99	50.00
145	1.000	16.99	50.00
150	1.000	16.99	50.00
155	1.000	16.99	50.00
160	1.000	16.99	50.00
165	1.000	16.99	50.00
170	1.000	16.99	50.00
175	1.000	16.99	50.00
180	1.000	16.99	50.00
185	1.000	16.99	50.00
190	1.000	16.99	50.00
195	1.000	16.99	50.00
200	1.000	16.99	50.00
205	1.000	16.99	50.00
210	1.000	16.99	50.00
215	1.000	16.99	50.00
220	1.000	16.99	50.00
225	1.000	16.99	50.00
230	1.000	16.99	50.00
235	1.000	16.99	50.00
240	1.000	16.99	50.00
245	1.000	16.99	50.00
250	1.000	16.99	50.00

**DIRECTIONAL ANTENNA  
FOR THE PROPOSED FM OPERATION AT  
LEONARDTOWN, MARYLAND  
MAY 1993**

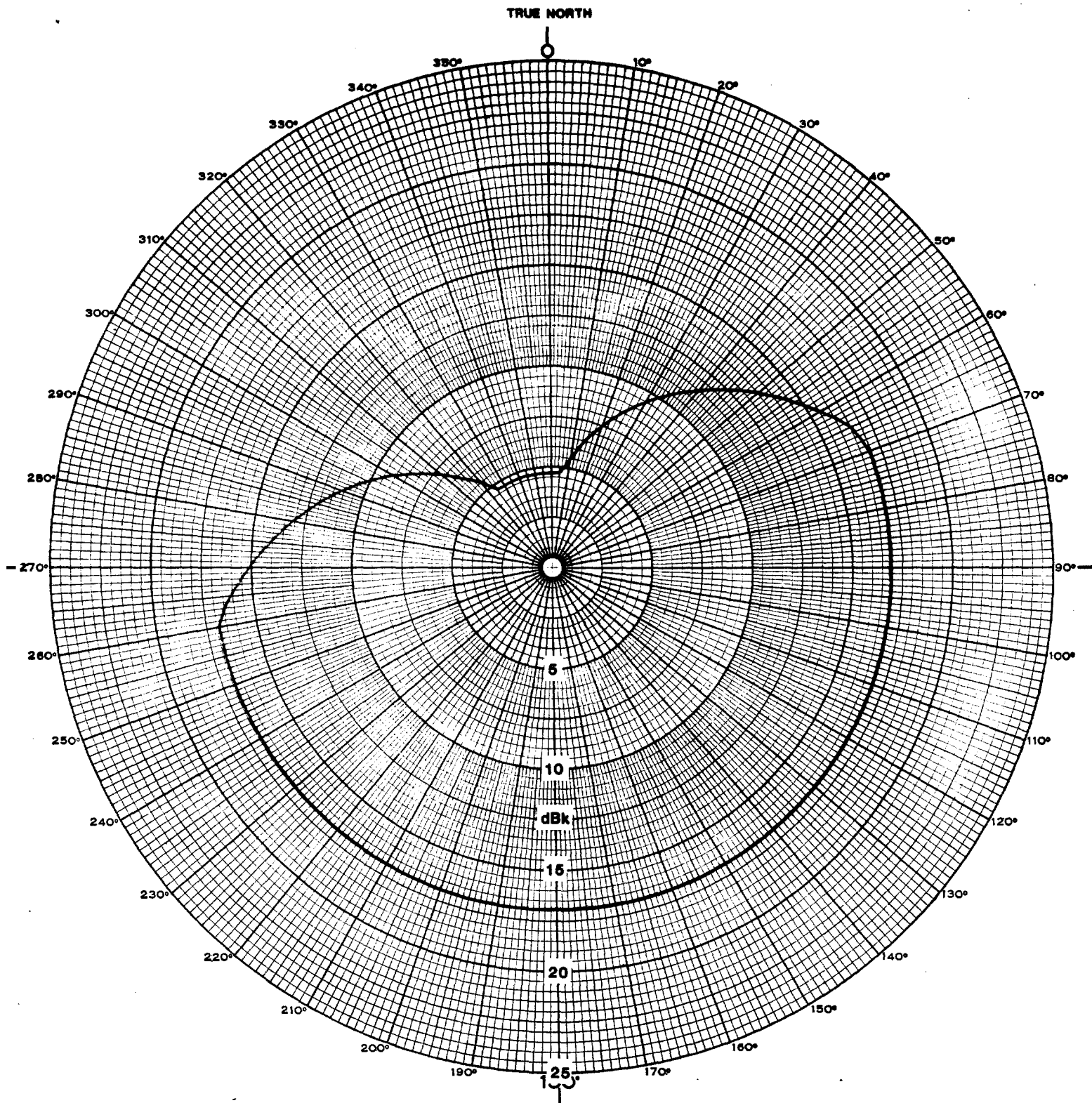
AZIMUTH	H&V ANTENNA RELATIVE FIELD	H&V EFFECTIVE RADIATED POWER	
		DBK	KW
255	1.000	16.99	50.00
260	1.000	16.99	50.00
265	0.909	16.16	41.30
270	0.810	15.16	32.81
275	0.722	14.16	26.06
280	0.643	13.16	20.70
285	0.573	12.16	16.44
290	0.511	11.16	13.06
295	0.456	10.16	10.38
300	0.406	9.16	8.24
305	0.362	8.16	6.55
310	0.322	7.16	5.20
315	0.290	6.24	4.21
320	0.268	5.55	3.59
325	0.245	4.77	3.00
330	0.245	4.77	3.00
335	0.245	4.77	3.00
340	0.245	4.77	3.00
345	0.245	4.77	3.00
350	0.245	4.77	3.00
355	0.245	4.77	3.00





**DIRECTIONAL ANTENNA  
(RELATIVE FIELD)  
FOR THE PROPOSED FM OPERATION AT  
LEONARDTOWN, MARYLAND  
MAY 1993**

**COHEN, DIPPELL and EVERIST, P.C.** Consulting Engineers Washington, DC



**DIRECTIONAL ANTENNA**  
(dBk)  
**FOR THE PROPOSED FM OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
MAY 1993

**COHEN, DIPPELL and EVERIST, P.C.** Consulting Engineers Washington, DC

COHEN, DIPPELL AND EVERIST, P.C.

**TABLE I**  
**FM ALLOCATION SITUATION**  
**FOR THE PROPOSED CHANNEL 219B OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
**MAY 1993**

Channel	Call	City/State	Maximum Effective Radiated Power kW	Height Above Average Terrain meters	Distance	
					Actual km	Required km
219B	Proposed	Leonardtown, MD	50	88.6	--	
216A	WHCE	Highland Springs, VA	3.0	32	104.1	
217B	WESM	Princess Anne, MD	45	91	87.3	
218B	WBJC	Baltimore, MD	50	152	118.5	
219A	WRTX	Dover, DE	0.71	85	136.4	
220B	WGTS	Takoma Park, MD	29.5	117	79.4	
221B1	WCDX	Mechanicsville, VA	4.5	235	108.0	71
222A	WLUD	Deltaville, VA	3.0	100	89.8	69
272B	None within 50 km		--	--		20
273B	None within 50 km		--	--		20

**TABLE II**  
**COMPUTED COVERAGE DATA**  
**FOR THE PROPOSED FM OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
**MAY 1993**

<b>Radial Bearing N °E,T</b>	<b>Average* Elevation 3 to 16 km meters</b>	<b>Height of Radiation Center Above Average Elevation of Radial 3 to 16 km meters</b>	<b>Effective Radiated Power kW</b>	<b>Predicted Distance to Contour 1.0 mV/m km</b>
0	25.8	81.2	3.0	21.9
45	15.0	92.0	17.8	35.0
90	25.0	82.0	50.0	41.3
135	25.7	81.3	50.0	41.2
180	6.1	100.9	50.0	44.9
225	1.1	105.9	50.0	45.8
270	18.3	88.7	32.8	39.2
315	30.3	76.7	4.2	23.0

\* Based on NGDC 30-second data base.

Channel 219B (91.7 MHz)  
Maximum Effective Radiated Power 50 kW (16.99 dBk)  
Average Elevation 3 to 16 km 18.4 meters AMSL  
Center of Radiation 107 meters  
Antenna Height Above Average Terrain 88.6 meters

North Latitude: 38° 19' 13"  
West Longitude: 76° 40' 10"

**TABLE III**  
**COMPUTED CONTOUR DATA**  
**FOR THE PROPOSED FM OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
**MAY 1993**

Radial Bearing N°E,T	Height of* Radiation Center Above Average Elevation of Radial 3 to 16 km meters	Effective Radiated Power kW	F(50,10)			
			Predicted Distance to Contour			
			0.1 mV/m km	0.5 mV/m km	10 mV/m km	100 mV/m km
0	81	3.0	72.2	32.5	6.8	2.1
5	85	3.0	73.0	33.4	7.0	2.2
10	86	3.5	75.7	35.2	7.3	2.3
15	88	4.5	79.9	38.1	7.9	2.4
20	89	5.6	83.6	40.5	8.4	2.6
25	90	7.0	87.5	43.3	9.0	2.8
30	88	8.9	90.9	45.4	9.4	2.9
35	88	11.2	95.1	48.3	10.0	3.1
40	92	14.1	99.9	51.8	10.8	3.3
45	92	17.8	104.6	54.5	11.4	3.6
50	91	22.4	109.4	57.0	12.0	3.8
55	89	28.2	114.6	59.6	12.5	4.0
60	90	35.4	120.3	62.6	13.3	4.2
65	88	44.7	125.7	65.6	13.9	4.4
70	88	50.0	128.4	67.2	14.3	4.6
75	88	50.0	128.5	67.4	14.3	4.6
80	86	50.0	128.2	67.0	14.2	4.5
85	84	50.0	127.8	66.5	14.0	4.5
90	82	50.0	127.4	66.0	13.8	4.4
95	79	50.0	126.7	65.2	13.5	4.3
100	77	50.0	126.5	64.9	13.4	4.3
105	77	50.0	126.4	64.8	13.4	4.3
110	78	50.0	126.5	64.9	13.4	4.3

**TABLE III**  
**COMPUTED CONTOUR DATA**  
**FOR THE PROPOSED FM OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
**MAY 1993**

Radial Bearing N °E,T	Height of* Radiation Center Above Average Elevation of Radial 3 to 16 km meters	Effective Radiated Power kW	F(50,10)			
			Predicted Distance to Contour			
			0.1 mV/m km	0.5 mV/m km	10 mV/m km	100 mV/m km
115	79	50.0	126.9	65.4	13.6	4.3
120	82	50.0	127.3	65.9	13.8	4.4
125	82	50.0	127.3	66.0	13.8	4.4
130	80	50.0	126.9	65.4	13.6	4.4
135	81	50.0	127.2	65.8	13.8	14.4
140	89	50.0	128.7	67.6	14.4	4.6
145	93	50.0	129.3	68.3	14.7	4.7
150	98	50.0	130.2	69.4	15.2	4.8
155	102	50.0	130.9	70.2	15.6	5.0
160	103	50.0	131.0	70.3	15.6	5.0
165	102	50.0	130.9	70.2	15.6	5.0
170	100	50.0	130.6	69.8	15.4	4.9
175	100	50.0	130.6	69.8	15.3	4.9
180	101	50.0	130.7	69.9	15.4	4.9
185	102	50.0	130.9	70.2	15.5	5.0
190	103	50.0	131.1	70.4	15.6	5.0
195	104	50.0	131.3	70.6	15.7	5.0
200	105	50.0	131.4	70.7	16.1	5.0
205	106	50.0	131.4	70.8	16.2	5.0
210	106	50.0	131.5	70.9	16.2	5.0
215	106	50.0	131.5	70.9	16.2	5.1
220	106	50.0	131.5	70.9	16.2	5.1
225	106	50.0	131.5	70.9	16.2	5.0

**TABLE III**  
**COMPUTED CONTOUR DATA**  
**FOR THE PROPOSED FM OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
**MAY 1993**

Radial Bearing N °E,T	Height of* Radiation Center Above Average Elevation of Radial 3 to 16 km meters	Effective Radiated Power kW	F(50,10) Predicted Distance to Contour			
			0.1 mV/m km	0.5 mV/m km	10 mV/m km	100 mV/m km
230	106	50.0	131.5	70.8	16.2	5.0
235	105	50.0	131.4	70.7	16.1	5.0
240	104	50.0	131.1	70.4	15.7	5.0
245	102	50.0	130.8	70.1	15.5	4.9
250	99	50.0	130.3	69.5	15.2	4.9
255	95	50.0	129.8	68.8	14.9	4.8
260	90	50.0	128.8	67.7	14.5	4.6
265	88	41.3	123.9	64.5	13.7	4.4
270	89	32.8	118.2	61.4	13.0	4.1
275	89	26.1	112.6	58.5	12.3	3.9
280	88	20.7	107.1	55.4	11.5	3.6
285	87	16.4	102.1	52.6	10.9	3.4
290	87	13.1	97.6	49.8	10.3	3.2
295	83	10.4	92.7	46.0	9.5	2.9
300	81	8.2	88.4	42.9	8.9	2.8
305	80	6.6	84.7	40.3	8.3	2.6
310	79	5.2	80.6	37.4	7.7	2.4
315	77	4.2	76.6	34.7	7.2	2.3
320	75	3.6	73.7	32.8	6.9	2.2
325	73	3.0	70.3	30.6	6.5	2.0
330	72	3.0	70.2	30.4	6.4	2.0
335	70	3.0	69.7	30.0	6.4	2.0
340	71	3.0	69.9	30.2	6.4	2.0

COHEN, DIPPELL AND EVERIST, P.C.

**TABLE III  
COMPUTED CONTOUR DATA  
FOR THE PROPOSED FM OPERATION AT  
LEONARDTOWN, MARYLAND  
MAY 1993**

Radial Bearing N °E,T	Height of* Radiation Center Above Average Elevation of Radial 3 to 16 km meters	Effective Radiated Power kW	F(50,10)			
			Predicted Distance to Contour			
			0.1 mV/m km	0.5 mV/m km	10 mV/m km	100 mV/m km
345	73	3.0	70.3	30.6	6.5	2.0
350	76	3.0	70.9	31.2	6.6	2.1
355	77	3.0	71.2	31.5	6.7	2.1

\* Based on NGDC 30-second data base.

Channel 219B (91.7 MHz)  
Maximum Effective Radiated Power 50 kW (16.99 dBk)  
Average Elevation 3 to 16 km 18.4 meters AMSL  
Center of Radiation 107 meters  
Antenna Height Above Average Terrain 88.6 meters

North Latitude: 38° 19' 13"  
West Longitude: 76° 40' 10"



**TABLE IV**  
**COMPUTED CONTOUR DATA**  
**FOR THE PROPOSED FM OPERATION AT**  
**LEONARDTOWN, MARYLAND**  
**MAY 1993**

<b>Azimuth N °E,T</b>	<b>Height of* Radiation Center Above Average Elevation of Radial 3 to 16 km meters</b>	<b>Effective Radiated Power kW</b>	<b>F(50,10) Computed Distance to Contour 89 dBu km</b>
0	81	3.0	4.1
5	85	3.0	4.2
10	86	3.5	4.4
15	88	4.5	4.7
20	89	5.6	5.0
25	90	7.0	5.4
30	88	8.9	5.6
35	88	11.2	6.0
40	92	14.1	6.4
45	92	17.8	6.8
50	91	22.4	7.1
55	89	28.2	7.5
60	90	35.4	7.9
65	88	44.7	8.4
70	88	50.0	8.6
75	88	50.0	8.6
80	86	50.0	8.5
85	84	50.0	8.4
90	82	50.0	8.3
95	79	50.0	8.1
100	77	50.0	8.0
105	77	50.0	8.0
110	78	50.0	8.0